

Research Highlights

Understanding the Sexual Behavior of Adolescents

Public health officials and educators have a long-standing interest in adolescent sexual behavior and risk prevention—an interest intensified by the spread of HIV. Unfortunately, understanding of adolescent sexuality is quite limited. Research on adolescent sexual behavior has typically concentrated on vaginal intercourse. However, adolescents who are virgins (defined as never having had vaginal intercourse) may still be sexually active and may behave in ways that put them at risk for sexually transmitted diseases (STDs).

As part of an ongoing program of research on risk behavior, Mark Schuster and his colleagues examined the range of adolescent sexual activity. They gathered data about the sexual behavior of adolescents in a socioeconomically diverse Los Angeles County school district, providing some of the first empirical information about the sexual practices of a population-based sample of high-school-aged virgins. The researchers also used this information to evaluate how a condom availability program affected adolescents' attitudes and behavior.

Among the key findings from this research:

- Many high-school-aged virgins engaged in genital sexual activities that can transmit disease.
- Virgins who engaged in activities most likely to transmit STDs were more likely to have used cigarettes, alcohol, and drugs.
- Adolescents would like more information about sexual matters, but many don't know if they can trust their doctors.
- A high school condom availability program was associated with a significant increase in the percentage of males who used condoms.
- The program also appears to have significantly increased the percentage of virgins who intended to use condoms in the future.

Learning About the Sexual Behavior of Adolescents

RAND researchers conducted a survey of sexual activity among high school students in a Los Angeles County school district in 1992. Of the approximately 2,060 students present on the day of the survey, 2,026 turned in usable surveys.

Questions covered demographics, sexual behavior, condom use, and nonsexual risk behaviors such as smoking and drinking. The survey used precise technical language and anatomical descriptions for types of sexual behavior; all of the terms used were part of the district's 9th grade health curriculum. Students filled out the surveys anonymously.

This Highlight summarizes RAND research reported in the following publications:

Schuster MA, Bell RM, Berry SH, Kanouse DE. Impact of a high school condom availability program on sexual activities and behaviors. *Fam Plann Perspect.* 1998;30:67-72,88. Also available as RP-706.

Schuster MA, Bell RM, Kanouse DE. The sexual practices of adolescent virgins: Genital sexual activities of high school students who have never had vaginal intercourse. *Am J Public Health.* 1996;86: 1570-1576. Also available as RP-601.

Schuster MA, Bell RM, Berry SH, Kanouse DE. Students' acquisition and use of school condoms in a high school condom availability program. *Pediatrics.* 1997;100:689-694. Also available as RP-687.

Schuster MA, Bell RM, Petersen LP, Kanouse DE. Communication between adolescents and physicians about sexual behavior and risk prevention. *Arch Pediatr Adolesc Med.* 1996;150:906-913. Also available as RP-569.

Schuster MA, Bell RM, Nakajima G, Kanouse DE. The sexual practices of Asian and Pacific Islander high school students. *J Adol Health.* 1998;23:221-231. Also available as RP-744.

Virgins who had engaged in higher-risk sexual activities were more likely to engage in other high-risk behaviors.

Slightly less than half of the students were virgins, and the percentage declined with grade, falling from about two-thirds in 9th grade to about one-third in 12th grade. Students who were virgins were more likely to have parents who had graduated from college, and they expected to do so themselves.

Among students who were virgins, 65 percent had not engaged in heterosexual genital activity; 29 percent and 31 percent reported that, during the prior year, they had engaged in heterosexual masturbation of a partner and masturbation by a partner, respectively. The corresponding rates for heterosexual fellatio with ejaculation, cunnilingus, and anal intercourse were 9 percent, 10 percent, and 1 percent. Homosexual sexual activities were rare among virgins. Other research indicates that many adolescents do not realize that sexual activity other than vaginal intercourse can transmit STDs.

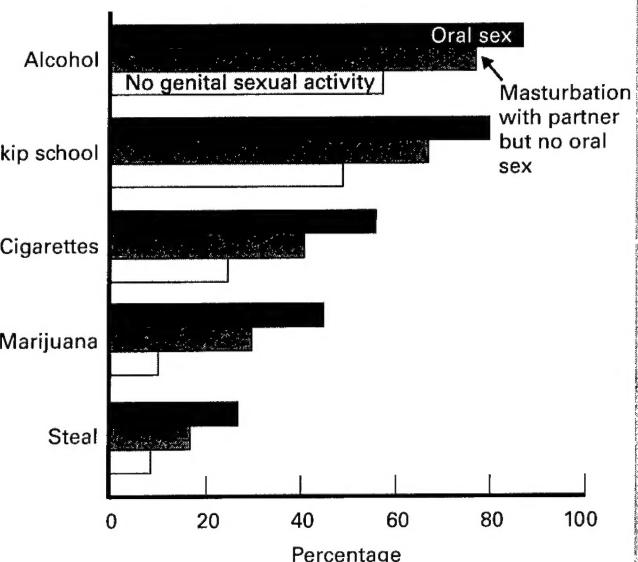
Virgins who had engaged in higher-risk sexual activities were more likely to engage in other high-risk behaviors. For example, virgins who had oral sex were significantly more likely to smoke, drink, and use marijuana than those who engaged in masturbation but not oral sex (Figure 1). They were also more likely to skip school and steal. In turn, all of these behaviors were significantly more likely among nonvirgins than among virgins.

Assessing Communication Between Adolescents and Physicians

Clearly, not all adolescent virgins are sexually inactive. They have diverse sexual experiences involving varying degrees of intimacy and health risk. This suggests that adolescents need reliable information about healthy sexual development and about risk prevention.

Indeed, more than half the students surveyed, both virgins and nonvirgins, said that they would find it very helpful to talk

Figure 1. Virgins Who Engaged in Heterosexual Sexual Activities Were More Likely to Engage in Other Risk Behaviors



with a doctor about topics such as avoiding contracting AIDS or other STDs and preventing pregnancy. However, about half the students also reported that they had never discussed such topics, or any other sexual matter, with a doctor.

In addition, adolescents appeared not to trust doctors to protect confidentiality. Figure 2 compares the percentage of adolescents who said it would be very helpful to discuss the indicated topics with the percentage who said they would not trust the doctor to keep a discussion of that topic confidential. There are many sex-related topics that adolescents want to talk about, but many adolescents don't know if they can trust their doctors to keep such discussions secret.

Effects of a Condom Availability Program on Adolescents' Sexual Behavior and Attitudes

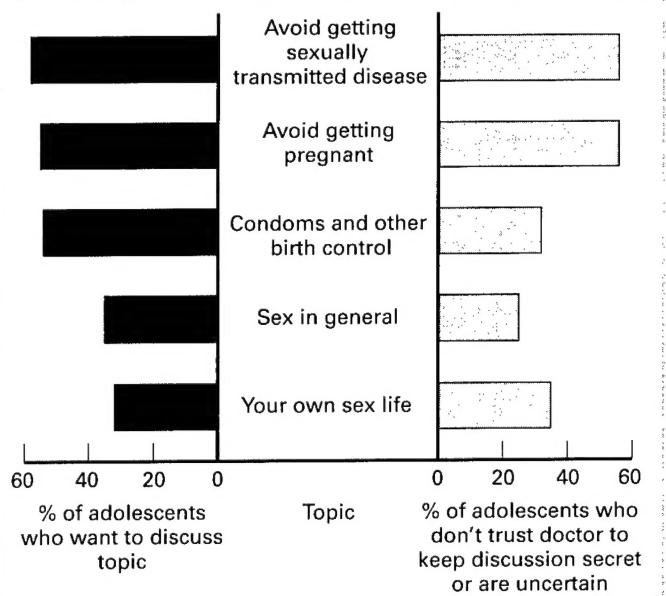
The findings described above provided the baseline against which to measure the effects of a condom availability program implemented in the high school in 1992. The program made male condoms available to all students. Students did not need parental consent to obtain the condoms, and there was no gatekeeper to dispense them. Condoms were available in several

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Figure 2. Many Adolescents Want to Discuss Sex-Related Topics but Don't Know If They Can Trust Doctors to Be Discrete



The beginning of adolescents' engaging in sexual experience with partners is not marked by a single act; rather it involves a range of activities.

needed to motivate girls to bring condoms to their existing sexual relationships.

In assessing changes in sexual behavior associated with condom availability programs, the question often arises of whether these programs encourage students to engage in sexual activities from which they would otherwise have refrained. The research team found no evidence of such an effect. With one exception, the program was not associated with an increase in students' sexual activity—whether vaginal intercourse or any other kind of heterosexual activity. However, girls showed a statistically significant increase in oral sex. One hypothesis is that they were substituting oral sex for vaginal intercourse some of the time.

The program did appear to have a dramatic effect on virgins' attitudes toward condom use. Before the program began, virgins and nonvirgins had about the same level of expectation that they would use condoms for vaginal intercourse in the future. But after the program, virgins had a much greater expectation of using condoms.

Expectations are an imperfect predictor of future behavior. However, lack of planning is a key reason for not using condoms. This change in expectations among adolescent virgins may be the most far-reaching effect of condom availability programs. Once a high school has had such a program for more than four years, many of its students will learn to use condoms for vaginal intercourse before they develop the habit of having intercourse without them.

Implications of This Work

The findings summarized above have important implications for parents, clinicians, teachers, and others responsible for the well-being of adolescents. The beginning of adolescents' engaging in sexual experience with partners is not marked by a single

locations in the school; in some of these locations, students could take condoms without being observed. During the program, 1,800–2,000 condom packets (two condoms per packet) were taken per month. The research team conducted a survey one year after the program was implemented to assess whether there had been a change in students' attitudes and perceptions about sexual activity or their sexual behavior and condom use.

Researchers found that condom use increased after the program began. Among males who had vaginal intercourse in the year before the survey, the percentage who reported using condoms every time increased significantly from 37 percent before the program to 50 percent after it was implemented. The percentage of males who reported using condoms at first vaginal intercourse also increased.

There were no significant changes in females' use of condoms during vaginal intercourse. Research has suggested that many adolescents have sexual partners who attend other schools or who are out of school. In this group of adolescents, being male was a strong predictor of whether the condom last used for vaginal intercourse was obtained at school. It appears that condom availability programs have stronger effects on boys, perhaps because they are the ones who typically bring condoms to a relationship. More vigorous efforts may be

act; rather it involves a range of activities. In particular, clinicians should not rely on an inquiry about virginity as their only screening question when deciding whether to test for STDs.

In addition, it is important for those who provide advice about sexual health to be precise. It may not be clear to an adolescent whether a recommendation of abstinence means abstinence from vaginal intercourse, from anal and oral intercourse, or from all types of sexual activity. If we do not recognize the range of sexual activities that exist, we may easily find ourselves saying one thing and being understood to say another by the adolescents whose health we seek to promote.

Future Directions

The work of Schuster and his colleagues has been instrumental in expanding the focus of research on sexual behavior. In particular, study findings about the sexual behavior of adolescent virgins underscore the dangers of viewing adolescents as sexually active or inactive based on their virginity alone.

Data linking high-risk behaviors such as smoking, drinking, and using marijuana to sexual behaviors that have high risk of STDs also highlight the need for longitudinal studies that can help determine whether the link is causal, whether it

reflects some other factor such as lack of parental supervision, or whether it reflects a maturation process in which these behaviors unfold at the same time. A study now under way in the UCLA/RAND Center for Adolescent Health Promotion (www.rand.org/health/adol.html) may shed light on this relationship. Researchers are planning to study a group of 5,250 10-year-old children annually until they are 20 years old and regularly thereafter. The study's goal is to identify sources and developmental pathways for health and educational behaviors and health outcomes.

This ambitious longitudinal study will help to explain some of the disparities in behaviors and outcomes across racial/ethnic groups and across groups of differing socioeconomic status. It will also provide information needed to develop new programs that promote healthy development among children and adults.

We are already developing and evaluating such a program: An eight-session program will help parents of adolescents develop skills for improving communication with their children, particularly about sexual issues. The goal of the program, which is offered at the worksites where parents are employed, is to promote healthy sexual development and reduced sexual risk behavior among adolescents.

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